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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/700,098

11/03/2003

Aoi Tanaka

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2814

7590 08/18/2008
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EXAMINER

HODGE, ROBERT W

ART UNIT

PAPER NUMBER

1795

MAIL DATE

DELIVERY MODE

08/18/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/700,098	Applicant(s) TANAKA ET AL.	
	Examiner ROBERT HODGE	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 July 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7, 10-13, 16, 19 and 20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7, 10-13, 16, 19 and 20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 7/31/08 has been entered.

Response to Arguments

Applicant's arguments with respect to claims 1-7, 10-13, 16, 19 and 20 have been considered but are moot in view of the new ground(s) of rejection.

Regarding the Declaration under 37 CFR 1.132, the declaration is not commensurate in scope with the claims. On page 3 of the declaration it states that the invention of instant claim 1 is a silane compound bonded to silica. However there is no recitation anywhere in claim 1 that even remotely refers to a silane compound, and there is also nothing in any of the dependent claims either.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

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Claims 1-7, 10-13, 16, 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 7,179,560 hereinafter Cho in view of U.S. Patent No. 5,523,181 hereinafter Stonehart.

Regarding claim 1, Cho teaches a fuel cell comprising catalyst layers disposed on surfaces of the electrolyte for each of the respective electrodes (column 6, lines 5-35) and a modified silica that is covalently bonded with an ion-conducting functional group (column 3, line 14 – column 4, line 67).

Cho does not teach that the modified silica is mixed in with the catalyst layer.

Stonehart teaches a fuel cell wherein silica is added to both catalyst layers of the fuel cell (column 5, line 51 – column 6, line 13 and Example 2).

At the time of the invention it would have been obvious to one having ordinary skill in the art to provide the modified silica of Cho in the catalyst layer of Cho as taught by Stonehart in order to improve the ionic conductivity of the catalyst layer by reducing the specific resistance of the catalyst layers.

Regarding claims 2-7 and 10, Cho teaches that the functional group can be a hydrocarbon, a proton dissociating group, a sulfinic group, a hydrogen bondable group, a hydroxyl group which have a mean molecular weight in the range of 40-10,000 and the bond can be with an oxygen atom (column 3, line 13 – column 4, line 27).

Regarding claim 11-13, the catalyst particles can comprise platinum and an electron conductor such as carbon (column 6, lines 15-35).

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Regarding claim 16, Cho teaches that is preferable to optimize the grain size of the modified silica and can have grain size in the range of 2-10 nm (column 4, lines 42-43). Cho does not teach that the mean particle diameter ranges from 0.1 to 100 μm .

Stonehart teaches that the mean particle size of the silica is 0.1 μm (column 6, lines 46 et seq.).

At the time of the invention it would have been obvious to one having ordinary skill in the art to optimize the mean particle size of the modified silica grains of Cho as taught by Stonehart since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. In re Aller 105 USPQ 233.

Regarding claim 19, Stonehart teaches that the catalyst layer has a thickness ranging from 0.1 to 10,000 μm (column 5, lines 15-29).

The examiner notes that claims 1 and 20 contain product-by-process limitations (i.e. elimination reaction). "Product-by-process claims are not limited to the manipulations of the recited steps, only the structure implied by the steps". See MPEP § 2113. Therefore because all of the structure recited in claims 1 and 20 is present in the Cho as modified by Stonehart, claims 1 and 20 are included in the above 103(a) rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ROBERT HODGE whose telephone number is (571)272-2097. The examiner can normally be reached on 8:00am - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/R. H./
Examiner, Art Unit 1795

/Jonathan Crepeau/
Primary Examiner, Art Unit 1795